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10/085,708	03/01/2002	Yasuhiro Kurosawa	220252US2S	1697

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EXAMINER

HA, NGUYEN T

ART UNIT

PAPER NUMBER

2831

DATE MAILED: 07/16/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/085,708

Applicant(s)

KUROSAWA ET AL.

Examiner

Nguyen T Ha

Art Unit

2831

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-11 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10 is/are allowed.
- 6) ☒ Claim(s) 1,2 and 7-9 is/are rejected.
- 7) ☒ Claim(s) 3-6 and 11/1-11/9 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## **DETAILED ACTION**

### ***Specification***

1. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

2. The abstract of the disclosure is objected to because on page 38, line 4, "comprises" is legal phraseology.
3. Correction is required. See MPEP § 608.01(b).

### ***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1,2 and 7-9 are rejected under 35 U.S.C. 102(b) as being anticipated by Maeda et al (5,796,630).

Art Unit: 2831

Regarding claim 1, Maeda et al disclose protection relay for determining whether or not a faultal point of a power system exists in a predetermined range (figures 3-18), comprising:

- filter means (20) for inputting sampling data of a voltage and a current in the power system to a digital filter having a predetermined transfer function and outputting a first voltage data and a first current data, and a second voltage data and a second current data normal to the first voltage data and the first current data, respectively (column 15 lines 61-67 and column 16 lines 1-5);
- calculation means (31) for calculating a predetermined measurement value based on the first voltage data, the first current data, the second voltage data and the second current data at a first time and the first voltage data, the first current data, the second voltage data and the second current data at a second time different from the first time (column 16 lines 6-15); and
- operation decision means (42) for performing an operation decision based on the predetermined measurement value obtained by the calculation means (column 16 lines 15-16).

Regarding claim 2, Maeda et al disclose the predetermined measurement value obtained by the calculation means contains at least one of a reactance value and an Ohm value (column 9 lines 44-47).

Regarding claim 7, Maeda et al disclose a protection relay for determining whether or not a faultal point of a power system exists in a predetermined range (figures 3-18) comprising:

Art Unit: 2831

- filter means (20) in which sampling data of voltage and current in the power system is inputted to a predetermined transfer function so as to output first voltage data and first current data and second voltage data and second current data normal to the first voltage data and the first current data, respectively;
- polarized voltage value calculation means (31) for inputting the first and second voltage data and the first and second current data so as to calculate a third voltage normal to the first voltage; and
- operation decision means (42) for performing an operation decision based on the third voltage.

Regarding claim 8, Maeda et al disclose the polarized voltage value calculation means calculates a third voltage  $v_{pjm}$  based on the first voltage data  $v_{sm}$ , the first current data  $i_{sm}$ , the second voltage data  $v_{jm}$ , and the second current data  $i_{jm}$  and the operation decision means decides the operation based on:

$$v_{pjm-p} - \{ (R_s - I_{sm} + X_s - 1j m) v_{sm} \}$$

$$v_{pjm}' \{ (R_s' I_{sm-p} + X_s' I_{jm-p}) v_{sm-p} \} > K_2$$

using the third voltage  $v_{pjm}'$ , the first voltage  $v_{sm}$ , the first current data  $i_{sm}$ , the second voltage data  $v_{jm}'$ , the second current data  $i_{jm}$  at the first time  $t_m$  and the first voltage data  $v_{jm-p}$ , the first current data  $i_{jm-p}$  at the second time  $t_{m-p}$  and a setting value  $(R_s, X_s)$  (column 13 lines 23-45).

Regarding claim 9, Maeda et al disclose the polarized voltage value calculation means calculates a voltage before predetermined cycles of a voltage normal to the first voltage as the third voltage (column 13 lines 5-12).

***Allowable Subject Matter***

6. Claims 3-6 and 11/1-11/9 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

With respect to claims 3-6, the prior art alone or in combination does not teach the limitation of protection relay wherein the filter comprises:

- first filter means for inputting the sampling data  $v_m$  and  $i_m$  at the first time  $T_m$  to a digital filter having transfer function  $f(Z) \cdot (1 + k \cdot Z^{-1} + Z^{-2})$  ( $Z$  indicates a  $Z$  conversion operator) so as to output voltage data  $v_{sm}$  and current data  $i_{sm}$ ; and
- second filter means for inputting the sampling data  $v_m$ ,  $i_m$  at the first time  $T_m$  to a digital filter having transmission  $f(Z) \cdot (1 - Z^{-2})$  ( $Z$  indicates a  $Z$  conversion operator) so as to output voltage data  $v_{jm}$  and current data  $i_{jm}$  normal to the voltage data  $v_{sm}$  and the current data  $i_{sm}$ ;

With respect to claims 11/1-11/9, the prior art alone or in combination does not teach the limitation of protection relay wherein the filter comprises:

- first filter means for inputting the sampling data to a digital filter having transfer function  $f(Z) \cdot (1 + k \cdot Z^{-1} + Z^{-2})$  ( $Z$  indicates a  $Z$  conversion operator) so as to output voltage data and current data; and
- second filter means for inputting the sampling data to a digital filter having the second transfer function  $f(Z) \cdot (1 - Z^{-2})$  ( $Z$  indicates a  $Z$  conversion operator) so as to output the second voltage data and current data.

7. Claim 10 is allowed.

Art Unit: 2831

The following is an examiner's statement of reasons for allowance:

With respect to claim 10, the prior art alone or in combination does not teach the limitation of a protection relay for determining whether or not a faultal point of power system exists in a predetermined range, comprising:

first filter means for inputting sampling data  $v_m$  and  $i_m$  of voltage (v) and current (i) in the power system to a digital filter having transfer function  $f(Z).(1+k.Z^{-1}+Z^{-2})$  (Z indicates a Z conversion operator) so as to output voltage data  $v_{sm}$  and current data  $i_{sm}$ ;

second filter means in which the sampling data  $v_m$ ,  $i_m$  are inputted to a digital filter having transfer function  $f(Z).(1-Z^{-2})$  (Z indicates a Z conversion operator) so as to output voltage data  $v_{jm}$  and current data  $i_{jm}$  normal to the voltage data  $v_{sm}$  and current data  $i_{sm}$ ;

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

#### **Citation Relevant of Prior Art**

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- a. Cheng discloses mimic high pass filter in a protective relay.
- b. Wilson discloses ground fault protective device.
- c. Eriksson et al disclose filtering arrangement for relay protective devices.

#### **Conclusion**


Art Unit: 2831

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Nguyen T Ha whose telephone number is 703-308-6023. The examiner can normally be reached on Monday-Friday from 8:30AM to 6:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dean Reichard can be reached on 703-308-3682. The fax phone numbers for the organization where this application or proceeding is assigned are 703-305-3432 for regular communications and 703-305-3431 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

**NH**  
**July 8, 2003**

  
DEAN A. REICHARD  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800  
7/10/03